

CHAPTER 18.32

Design Standards

18.32.010 Compliance with regulations.

No final plat shall be approved by the Council unless it complies with the standards set out in this Chapter and the engineering criteria provided by the Public Works Department. (Ord. 673 87, 1987)

18.32.020 General standards.

A. The design and development of subdivisions shall preserve, insofar as it is possible, the natural terrain, natural drainage, existing topsoil and trees.

B. Land subject to hazardous conditions, such as landslides, mudflows, rock falls, snow drifts, possible mine subsidence, shallow water table, open quarries, floods and polluted or nonpotable water supply, shall be identified and shall not be subdivided until the hazards have been eliminated or will be eliminated by the subdivision and construction plans.

C. Provision shall be made to preserve groves of trees, streams, unusually attractive topography and other desirable natural landscape features.

D. A proposed subdivision shall be designed in such a manner as to be coordinated with adjoining subdivisions with respect to the alignment of street rights-of-way and utility and drainage easements and open spaces.

E. A proposed subdivision shall not, by reason of its location or design, cast an undue burden on public utility systems and community facilities on or adjacent to the tract. Where extension and enlargement of public utility systems and community facilities are necessary, the subdivider shall make provision to offset higher net public cost or earlier incursion of public cost necessitated by the subdivision. Due consideration shall be given to difference between anticipated public costs of installation, operation and maintenance and anticipated revenue derived from the fully developed subdivision in determining added net public cost. (Ord. 673 87, 1987)

18.32.030 Street plan and general requirements.

A. Street plan. The arrangement, extent, width, type and location of all streets shall be designed in relation to existing or planned streets, to topographic conditions, to public convenience and safety and in relation to the proposed use of land to be served. Streets shall be extended to the boundaries of the property, except where such extension is prevented by the topography or other physical conditions or where the connection of streets with existing or probable future streets is deemed unnecessary for the advantageous development of adjacent properties. All building sites shall have access to a public street.

B. Through traffic. Local streets shall be arranged so that their use by through traffic will be discouraged.

C. Stub streets. Stub streets or extensions of new streets must be provided to connect to existing stub streets for an efficient street system. Not more than six (6) lots shall front on a stub street except where a temporary turnaround is provided.

D. Intersections. Freeways and arterial streets shall not be intersected by local streets. Collector streets shall not intersect arterial streets at intervals of less than one quarter ($\frac{1}{4}$) mile (one thousand three hundred twenty [1,320] feet).

E. Street standards. Developers may apply for the following street standard options contingent upon the property being developed in accordance with the coinciding requirements:

City of Evans Street Standards

	<i>*Right-of-way (in feet)</i>	<i>Roadway width (in feet) (flow line-to-flow line)</i>	<i>Travel lanes (number, width in feet)</i>	<i>Parking (number, width in feet)</i>	<i>Sidewalk on both sides (in feet)</i>	<i>Conditions:</i>
Gateway Arterial	120	72	4, 12	None	10-foot detached	13-foot landscaped parkways ⁺ 20-foot raised median [†] Driveways not permitted.
Arterial	110	68	4, 12	None	10-foot detached	Driveways not permitted. 11-foot landscaped parkways ⁺ 16-foot turn lane or raised median [†]
Major Collector	80	52	4, 12	None	8-foot detached	Driveways discouraged. -foot landscaped parkways ⁺
Commercial Collector	70	50	2, 12	2, 7	8-foot attached	Driveways discouraged. 12-foot turn lane or median [†]

City of Evans Street Standards (Cont'd)

	<i>*Right-of-way (in feet)</i>	<i>Roadway width (in feet) (flow line-to-flow line)</i>	<i>Travel lanes (number, width in feet)</i>	<i>Parking (number, width in feet)</i>	<i>Sidewalk on both sides (in feet)</i>	<i>Conditions:</i>
Minor Collector #1	65	40	2, 12	None	8-foot attached	12-foot turn lane
Minor Collector #2	65	28'	2, 12	None	8-foot detached	7-foot landscaped parkways ⁺ Driveways not permitted Vertical curb & gutter No parking signs
Boulevard Collector	80	50	2, 12	2, 7	8-foot attached	12-foot median [†] 7-foot landscaped parkways ⁺
Local #1	60	34	2, 10	2, 7	5-foot detached and 6-foot attached	6-foot landscaped parkways ⁺
Local #2	55	27	2, 10	1, 7	5-foot detached	6-foot landscaped parkways ⁺

Rural Local	60	28	2, 12	None	None	Permitted only adjacent lots of one acre or greater. Driveway crossing permitted at approved locations only Minimum 10' drainage easements, minimum 5' utility easements outside right-of-way, both sides.
Alley	24	20	20	None	None	N/A

- * Right-of-way option: In accordance with traffic studies/warrants, additional right-of-way may be needed as required by the Director of Public Works.
- + Parkway landscaping: parkways shall consist of ground cover with landscaped/xeriscaped areas that include shrubs, bushes, hedges or other landscaping ornament as approved by the City. Minimum 2" caliper deciduous trees shall be planted at 30-40 foot spacings in the center of all parkways. Species shall be selected from the City-approved plant materials list. The placement of all trees shall meet the city's sight distance standards as provided in Chapter 15.58.
- † Landscaped median: medians shall consist of ground cover with landscaped/xeriscaped areas that include 2" caliper deciduous trees planted at 30-40 foot spacings in the center of all medians. Shrub groupings may be added to the median design, but shall not substitute for any trees. Species shall be selected from the City approved plant materials list. The placement of all trees shall meet the city's sight distance standards as provided in Chapter 15.58. The developer shall be responsible for installing the median and providing a perpetual maintenance mechanism for the median.

F. Access and circulation standards.

1. Access from the City's street system to individual parcels may be granted after consideration of the public health, safety and welfare, impact upon traffic flow, street right-of-way drainage and the functional level of the street. It is the City's intent to protect the safety, traffic operations and the assigned functional classification of the street system while considering the access needs of the abutting properties. The location, design and construction of approved accesses shall be in accordance with Section Four, Design Standards and Specifications, of the State Highway Access Code.

2. Vehicular access and circulation shall be designed to be safe and efficient for use by all modes of transportation. Every use or site shall have access to a public street or right-of-way or a City approved private road, court or other area dedicated to public or private use, or common element guaranteeing perpetual access. Alleys shall not be used as primary access unless approved by the City.

3. Adequate access to and throughout the site shall be provided for emergency service vehicles as identified in the fire code or otherwise required by law.

4. Provision shall be made for the dedication of all rights-of-way needed for the improvement of existing streets or the construction of new streets identified in the City's Transportation Plan, except as otherwise agreed to in writing by the City.

5. Streets stubbed to the boundary of a site by previously approved development plans or existing development shall be incorporated and continued, to the extent practical, to provide for logical, orderly and convenient movement of vehicular traffic throughout the development, from one neighborhood to the next and to local destinations such as parks, schools and shopping areas.

6. Commercial and industrial developments shall be designed to minimize the use of residential streets.

G. Half-streets. Half-streets shall not be permitted unless:

1. They are required to complete a half-street already in existence.
2. They are required to extend an existing street.
3. They are developed in accordance with Section 18.36.020 of this Title.

H. Dead-end streets (not cul-de-sacs). Dead-end streets shall not be permitted.

I. Cul-de-sac streets. Permanent cul-de-sac streets, not exceeding five hundred (500) feet in length as measured from a point on the closest right-of-way line of the intersecting street, such point also being the centerline of the cul-de-sac, continuing along said centerline to the radius point of the cul-de-sac bulb, may be permitted, and must be provided with a right-of-way radius at the turnaround of fifty-five (55) feet or more, radius of roadway must be forty-five (45) feet flowline to flowline or more.

J. Number of streets at intersections. No more than two (2) streets shall intersect at one (1) point.

K. Angle of street intersections. Streets shall intersect at ninety (90) degrees, except where this may be impractical. Angles of less than ninety (90) degrees may be designed, subject to the approval of the Planning Commission.

L. Centerlines of intersecting streets. Two (2) streets meeting a third street from opposite sides shall meet at the same point, or their centerlines shall be offset at least two hundred (200) feet. This requirement shall not apply to the alignment of opposing cul-de-sac streets. (Ord. 252-04; Ord. 1180-99, 1999; Ord. 1158-99, 1999; Ord. 673 87, 1987)

18.32.040 Street names.

Streets shall have the names of existing streets which are in alignment in the City. There shall be no duplication of street names within the area. The subdivider shall bear full costs for material and installation of street signs. (Ord. 673 87, 1987)

18.32.050 Streets – curvature and alignment.

A. To ensure adequate sight distances, when street roadway lines deflect more than five (5) degrees, connection shall be made by horizontal curves. The minimum centerline radii for local streets shall be one hundred (100) feet; for collector streets, two hundred (200) feet; and for all other streets, three hundred (300) feet. On collector and major streets, a minimum tangent of one hundred (100) feet shall be required between a curve and street intersection; a minimum tangent of one hundred (100) feet shall be required between reverse curves.

B. Vertical curves.

1. Vertical curves shall be used at changes of grade exceeding one percent (1%), and shall be designed to provide minimum sight distances of two hundred (200) feet for local streets and three hundred (300) feet for all other streets.

2. No vertical grade shall be less than two tenths percent (0.2%) in order to facilitate adequate drainage.

3. Maximum percent of street grade, except as provided below, shall be as follows:

- a. Local streets, eight percent (8%);
- b. Collector streets, seven percent (7%); and
- c. Arterial streets, five percent (5%).

4. Where a horizontal curve occurs on a grade of over five percent (5%), the maximum allowable percent of grade on the curve shall be reduced by five tenths percent (0.5%) of each fifty (50) feet that the curve radius is less than four hundred (400) feet.

5. Street grades shall not exceed fourth tenths percent (4.0%) for a distance extending at least forty (40) feet in each direction from a street intersection. (Ord. 673 87, 1987)

18.32.060 Frontage near major highways.

Where a residential subdivision abuts a major highway, service roads may be required. A subdivision that adjoins or contains an existing or proposed freeway or arterial provided in the Comprehensive Plan may be required to provide service roads at least thirty-six (36) feet in roadway width, with a sixty-foot right-of-way. (Ord. 673 87, 1987)

18.32.070 Roadbed construction standards.

Roadbed construction shall be constructed in accordance with standards provided by the City under separate cover. (Ord. 673 87, 1987)

18.32.080 Sidewalks and pedestrian pathways, curbs and gutters.

A. Sidewalks and pedestrian pathways.

1. A system of public sidewalks constructed of asphalt, concrete or other approved materials and pedestrian pathways constructed of asphalt, concrete or other approved materials shall be incorporated into the site to move pedestrians throughout the site. Sidewalks shall be provided on both sides of all streets and have dimensions in accordance with Subsection 18.32.030.E., unless sidewalks and their dimensions are specifically exempted by the City.

2. Sidewalks and pedestrian pathways shall connect the site with public sidewalks; all principal buildings on the site; parking lots and where logical connections to off-site locations can be made, as identified in the City's Transportation Plan for pedestrian and bicycle route maps.

B. Curbs and gutters. All streets shall be provided with concrete curb and gutter for pavement edging, unless otherwise specifically exempted by the City. Curbs and gutters shall be constructed according to standards as set by the Public Works Department. (Ord. 1180-99, 1999; Ord. 673 87, 1987)

18.32.090 Block standards.

The lengths, widths and shapes of blocks shall be determined with due regard to the following:

A. Provision of adequate building sites suitable to the special needs of the type of use contemplated;

B. Requirements of the zoning ordinance as to lot sizes and dimensions;

C. Need for convenient access, control and safety of vehicular and pedestrian traffic circulation and of emergency vehicles;

D. Limitations and opportunities of topography;

E. Maximum block length between intersecting streets shall be one thousand five hundred (1,500) feet. (Ord. 673 87, 1987)

18.32.100 Lot sizes and standards.

A. Lot size, width, depth, shape and orientation and minimum building setback lines, shall be appropriate for the location of the subdivision and for the type of development and use contemplated, and shall facilitate the placement of buildings with sufficient access, outdoor space, privacy and view. No lot shall be more than three (3) times as long as it is wide.

B. Depth and width of properties reserved or laid out for commercial and industrial purposes shall be adequate to provide for off-street parking, landscaping or planting area and loading areas required by the type of use and development contemplated.

C. Lots.

1. City and county boundaries. No single lot shall be divided by a municipal or county boundary line.

2. No separation by roads. A lot shall not be divided by a road, alley or other lot.

3. Access. Each lot shall be provided with satisfactory access to an existing public street.

4. Corner lots. Corner lots for residential use shall have extra width to accommodate the required building setback line on both street frontages.

5. Wedge-shaped lots. In the case of wedge-shaped lots, no lot shall be less than thirty (30) feet in width at the front property lines.

6. Lot lines. Side lot lines shall be at substantially right angles and radial to curved streets. Where lot lines are not at right angles to the street lines, this shall be indicated.

7. Fronting on public streets. Double-frontage and reverse-frontage lots shall not be permitted except where essential to provide separation of residential properties from arterial streets or adjacent commercial uses.

8. A statement dissolving right of access from individual lots to an arterial street shall be included on the final plat. (Ord. 673 87, 1987)

18.32.110 Easements.

A. Easements shall follow rear and side lot lines whenever practical, and shall have a minimum total width of twenty (20) feet along rear lot line and ten (10) feet alongside lot lines, apportioned equally in abutting properties.

B. Easements shall be designed so as to provide efficient installation of utilities. Special guying easements at corners may be required. Public utility installations shall be so located as to permit multiple

installations within the easements to avoid cross connections, minimize trenching, and adequately separate incompatible systems.

C. The developer shall establish rough-cut final utility grades prior to utility installations. (Ord. 673 87, 1987)

18.32.120 Alleys.

Service access to the interior of blocks may be permitted in certain instances, in which case such alleys must be indicated in the plats and be paved. (Ord. 673 87, 1987)

18.32.130 Driveways.

Driveways shall be provided for vehicular access to each structure or parking or loading area. Driveways shall not be permitted to have direct access to arterial streets. (Ord. 673 87, 1987)

18.32.140 Sewage disposal facilities.

In all cases, sanitary sewage disposal facilities shall be provided for every lot or parcel by a complete community or public sanitary system. All sewer mains shall be installed in easements and/or dedicated rights-of-way. (Ord. 673 87, 1987)

18.32.150 Water supply and distribution.

A. All lots shall be provided water from the city water system.

B. The water distribution system within any development or subdivision shall be shown graphically. The graphics shall illustrate existing and proposed water lines, fire hydrants, valves, tee's and all obvious and identifiable appurtenances thereto. Static pressure and flow rate shall be delineated at each fire hydrant within the subdivision, and at each fire hydrant outside the subdivision for a distance of six hundred (600) feet. The method for analyzing the pipe network system to acquire design values shall be the "Hardy Cross Method." Frictional losses shall be from published data, or furnished by the City of Evans. Head losses shall be computed using the "Darcy Weisbach" equation.

C. The burden of proof shall lie upon the subdivider or developer to show that sufficient water is available at peak demand to provide acceptable pressures for domestic use and firefighting needs.

D. All water mains shall be within dedicated public rights-of-way.

E. No water main shall be closer than ten (10) feet to any sanitary sewer main or service.

F. Fire hydrants shall be no further than five hundred (500) feet apart.

G. No water main or service shall have less than four and one half (4½) feet of cover for pipelines twenty (20) inches and smaller, nor less than four (4) feet of cover for pipelines larger than twenty (20) inches, as measured from finished grade to top of pipe.

H. The minimum size water main in any local street shall be six (6) inches. The city reserves the right to over-size the pipe if it deems such action necessary.

I. The minimum size water main in any collector street shall be eight (8) inches. The City reserves the right to oversize or undersize the pipe if it deems such action necessary.

J. The minimum size water main in any arterial street shall be twelve (12) inches. The City reserves the right to oversize or undersize the pipe if it deems such action necessary.

K. Material and installation specifications shall be in accordance with the City's water department standards.

L. All City construction regulations and ordinances shall meet current Colorado State health statutes and regulations. (Ord. 673 87, 1987)

18.32.160 Storm drainage system requirements.

A. Drainage areas shall be left in a natural state unless otherwise approved by the Planning Commission.

B. A plan to prevent pollution or disturbance of a natural waterway shall be submitted whenever and wherever modification of topography is required by construction, within any distance of a waterway that stands to be affected by said construction.

C. A drainage plan shall be designed for any lot, parcel or subdivision, by an engineer licensed by the State of Colorado.

D. The drainage plan shall be shown graphically, and shall include, but not be limited to, the following information:

1. Existing topography of the site;
2. Proposed topography of the site;
3. Proposed improvements to the site;
4. Above ground and underground storm sewer facilities proposed;
5. Detention or retention facilities proposed;
6. Details of any structure designed to facilitate the diversion or containment of storm water;
7. Calculated flows (Q's) for a five-year storm frequency and a one-hundred-year storm frequency at all street intersections, intersecting water courses, inlets to below ground facilities, outlets from above ground facilities and outlets from below ground facilities;
8. Five-year and one-hundred-year flows (Q's) from any adjacent properties, with said flows (Q's) being a consideration in said plan;
9. The sequence of construction of all facilities as relates to the development construction;
10. Easements dedicated for watercourses, pipelines, etc., for the purpose of maintaining same;
11. Method of detaining any storm through a one-hundred-year frequency with a discharge equal to, or less than, that of a five-year historic frequency;
12. The carrying capacity of all above ground and below ground facilities;

13. The top of foundation elevation for each lot;

14. The design elevation at the lowest corner of each lot, and the design elevation at the lowest corner of each lot;

15. A general location map for the subdivision, showing the entire drainage basin involved and the development accurately outlined on same. The acreage within and without the development shall be shown.

E. The City shall designate the information source from which all storm design values must be extracted for the purpose of the design.

F. It is suggested and encouraged that detention and retention facilities serve a multipurpose function, i.e. parks, recreation, etc.

G. Flow arrows clearly showing the runoff flow pattern throughout the development must be given.

H. The impact of a five-year frequency storm discharge on any downstream structures and waterways must be furnished.

I. Pipe sizes shall be sufficient to accommodate the computed flow of a five year storm with zero head. No underground stormwater pipe smaller than eighteen (18) inches diameter shall be used without written permission of the Planning Commission. No underground stormwater pipe smaller than twelve (12) inches diameter shall be allowed. The City reserves the right to oversize any pipe.

J. The velocity in an unlined water course shall not be designed to reach that velocity which may cause erosion of said water courses. No open water course exceeding two (2) feet in depth shall be constructed without lining and fencing, unless specifically permitted in writing by the Planning Commission.

K. Upon construction completion of the drainage facilities, whether in whole or in part, and prior to said facilities being acceptable to the City, a letter from an engineer licensed in the State of Colorado shall be submitted to the City Planning Commission and the City Public Works Department attesting that said facilities have been constructed in accordance with the design approved by said commission and department. Said letter shall bear the signature and seal of said engineer. The drainage facilities shall be considered as unacceptable by the City until said letter is received and acknowledged by the Planning Commission and the Public Works Department.

L. No lot, parcel or development shall be allowed to discharge stormwater at a rate which exceeds the historic runoff rate of a calculated five-year storm, unless first approved in writing by the Planning Commission.

M. It will be unacceptable for any storm of one-hundred-year frequency and smaller to be designed to exceed the dedicated right-of-ways and drainage easement boundaries.

N. No landowner shall alter the drainage pattern of any lot such as to increase the quantity or decrease the time of stormwater runoff onto adjacent properties, nor shall any landowner impede the flow of stormwater through easements dedicated in whole or in part for drainage. (Ord. 673 87, 1987)

18.32.170 Aquifers construction restrictions.

- A. Any use of land which would pollute or contaminate an aquifer is prohibited.
- B. The following regulations apply to development over aquifers that are within twenty (20) feet of the land surface and in the areas of aquifer recharge:
 - 1. Construction of buildings shall not be permitted unless approved by the State Health Department and the Colorado Geological Survey;
 - 2. Building construction shall have foundations designed by a professional engineer. (Ord. 673 87, 1987)

18.32.180 Floodplain use restrictions.

For regulations regarding floodplain use restrictions, refer to Chapters 16.04 through 16.24 of this Code. (Ord. 673 87, 1987)

18.32.190 Irrigation ditches.

Existing irrigation ditches shall be incorporated within the subdivision plan in a manner such that their function is not impaired. The ditches shall be protected from encroachment, and may be fenced in a manner acceptable to the ditch company. (Ord. 673 87, 1987)

18.32.200 Partial development of a parcel.

Where an entire parcel is not subdivided, the subdivider must indicate his or her intended plans for disposition of the remainder of the parcel. (Ord. 673 87, 1987)

18.32.210 Public sites, parks and open spaces – dedication.

Dedication of public sites, parks and open spaces shall comply with the regulations specified in Chapter 15.52 of this Code. (Ord. 673 87, 1987)

18.32.220 Fire safety requirements.

- A. All subdivisions shall be required to provide minimum fire protection.
- B. Fire hydrants shall be spaced no more than five hundred (500) feet apart.
- C. A fire hydrant shall be located at the entrance of each cul-de-sac street.
- D. Minimum waterline size shall be six (6) inches within all subdivisions.
- E. Fire hydrants that have two and one half (2½) inch outlets shall have the National Standard Thread. Four and one-half (4½) inch streamers shall have National Standard Threads, four (4) threads per inch.
- F. Minimum residual pressure of twenty (20) to thirty (30) psi under fire flow conditions at the fire hydrant will be considered to provide minimum fire protection.

G. Fire hydrants shall be located on dedicated street rights-of-way, and be accessible to the standard fire pumper. (Ord. 673 87, 1987)

18.32.230 Undergrounding of electric, telephone and cable systems.

A. Electric power, telephone and a cable system connections and wire shall be placed below the surface of the ground in accordance with all applicable regulations.

B. Transformers, switching bases, terminal boxes, meters, cabinets, pedestal ducts and other facilities necessarily appurtenant to such underground connections shall not be located on power poles, but shall be placed on or under the surface of the ground and, where placed on the surface, shall be adequately screened and fenced as necessary for safety and concealment.

C. Electric transmission and distribution feeder lines and communication trunk and feeder lines may be placed above ground. (Ord. 673 87, 1987)

18.32.240 Street lights.

Ornamental street lighting and associated underground street-lighting supply circuits shall be installed. The minimum requirements shall be seven thousand (7,000) lumen lamps at a maximum spacing of four hundred (400) feet. The street lighting plan specifying the number, kind and approximate location of street lights must be included with the final plat. (Ord. 673 87, 1987)